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ABSTRACT

Contrary to recent national trends, enrollments at colleges of agriculture have increased 181% between 1963 and 1976, with an ever increasing proportion of agricultural students coming from urban backgrounds. During the spring of 1977, mail questionnaire data were collected from 3,175 undergraduate "ag" majors (93.8% White and 6.2% Black) enrolled in colleges of agriculture at land-grant universities in 13 southern states. Findings indicated that about 57% of the students were from urban areas; 41% of the rural students came from farms and the other 52.9% came from rural non-farm areas; males comprised about 75% of the agriculture student body; since their childhood, a majority of the parents had moved to more urban areas while those reared in urban areas had tended to remain there; agriculture students from urban areas both aspired to and expected more education than those from rural areas; 62% of the students were in traditional fields of study; urbanites comprised at least 60% of students enrolled in non-traditional majors (forestry and wildlife, preveterinary medicine, landscape architecture, biological science, and food science); 78% of students had had some agricultural work experience; students showed a preference for eventually living in areas similar to those in which they currently resided. Findings suggest that the image of farming and agriculture as a whole will continue to change as more and more college educated city-dwellers enter these occupations. (NEC)

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Ann Virginia Parke

SOUTHERN URBAN AGGIES: A PRELIMINARY LOOK *

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INTRODUCTION

In recent years most colleges and universities throughout the nation have experienced a stabilization of enrollment, and in some instances, a decline in enrollment. However, colleges of agriculture within universities have at the same time enjoyed substantial growth. According to the National Association of State Universities and Land-Grant Colleges, "ag" school enrollment increased 181% between 1963 and 1976 (Thompson, 1976). Sledge (1977) reports an increase in undergraduate enrollment from 32 thousand in the early 1960's to 98,183 in 1976. Although in the last year or two this rapid growth may have subsided somewhat, the overall trend is upward. As stated by Darrell Metcalfe (1977:94):

> There no doubt may be ups and downs in (colleges of agriculture) enrollment in the future, both actual and in comparison with the total enrollment in higher education, but the overall trend should continue upward.

The primary source of higher education in agriculture originates from the nation's land-grant universities. The majority of these institutions were established by the Morrill Act of 1862. A similar act (Morrill Act of 1890) created black land-grant universities in seventeen southern and border states. The black institutions were "usually associated with the cash crop of the area" (Seals, 1977: 109).

Initially, instruction in agriculture was of the "classical" nature (Poffenberger, 1977). "As time went on, some criticized professors of agriculture for being impractical, calling them 'book farmers'" (Kellogg and Knapp, 1966:11). However, with advances in agricultural technology, training in these institutions developed a more practical "how to farm" orientation. These academic institutions provided farmers with increased technology and practical techniques for improving farming skills.

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As advanced technology entered farming, supporting occupations made "agriculture" a word implying much more than simply the raising of crops and livestock. A vast array of farm related enterprises developed. The actual number of individuals directly involved in farming has dropped dramatically throughout our nation's history so that today farmers comprise only five percent of the population. However, with the development of nonfarm agricultural enterprises, many people employed in the agricultural sector of the American economy are not farmers. Those engaged in nonfarm agriculture account for about one-third of the American labor force (Hassinger, 1978). Therefore, while farming has decreased per se, the scope of American agriculture in its entirety has been increasing.

Today's agriculture is not restricted to those who reside in rural areas. In fact, city-dwellers are now involved in more nonfarm agriculture than are rural residents (Kellogg and Knapp, 1966).

Since the inception of the first "ag" schools over a hundred years ago the population of the United States has undergone a dramatic change. The first census of the United States, taken in 1790 revealed an urban population of only five percent, thus 95 percent of the nation lived in rural areas (Taylor and Jones, 1964). This previously predominantly rural nation is now three-fourths urban with only five percent engaged in farming (Hassinger, 1978). Despite this population trend, "ag" schools across the nation have not only survived, but have recently experienced phenomenal growth. What is even more intriguing is the surge of traditionally nonexistent women and urban "ag" students. "At one time the typical student enrolled in the agricultural and natural resource curricula in colleges of agriculture was a farm-reared male" (Doerr and Kroening, 1977:149). However, a recent survey of administrators in colleges of agriculture found a change in the formerly homogeneous "ag" school population. The findings reveal a much more heterogeneous student body with large increases in the enrollment of women and urbanites (Sledge, 1977). Darrow (1977) notes that in 1973-1974 land-grant colleges of agriculture had a female enrollment of 19 percent, with this figure rising to 28 percent in 1976-77. This constitutes an increase of 47.4 percent in three years. However, it should also be noted that, in general, the percentage of women enrolling in institutions of higher learning has increased rapidly since 1970 (Darrow, 1977). While actual figures on the rise of urban residents' participation in agricultural schools are virtually nonexistent, much current literature has noted this surprising development (Sledge, 1977; Doerr and Kroening, 1977; Mowrer and Folks, 1977; Boyd and Pettigrew, 1977).

Although the recent influx of urbanites may be somewhat confusing, for many years colleges of agriculture have made attempts to keep pace with changes in American society and the expanding non-farm agricultural sector. A sudden realization of this by the public may, in part, account for the expanded urban participation. Sledge (1977:46) cites two agricultural school administrators who reveal some institutional reaction to the increased number of nontraditional students:

> Many institutions have broadened the curricular offering for agricultural and natural resources students.[1]
>
> Other institutions have a greater flexibility or liberalization of program requirements, with more attention being given to urban background and women students' educational needs.[2]

This is not to imply that the standard curricula of the early "ag" schools have been discarded. On the contrary, they remain a vital part of these institutions. However, many non-traditional majors such as forestry and wildlife management, veterinary medicine, and landscape architecture have been added to their curricula. Also, many of the biological sciences are now being offered in colleges of agriculture.

This paper examines differences between urban and rural "aggies". In particular, variations in the following characteristics will be considered: (1) size of father's and mother's childhood place of residence; (2) education experience; (3) educational aspirations and expectations; (4) major field of study; (5) work experience; (6) occupational aspirations and expectations; (7) residential preference. Special attention is paid to the type of majors attracting urban students in colleges of agriculture.

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[1]Bennett, William F. Associate Dean, College of Agricultural Science, Texas Tech University, Lubbock, TX, 1976. Personal Communication in Sledge (1977).

[2]Ronning, Magnar. Associate Dean, College of Agricultural and Environmental Science, University of California, Davis, CA, 1976. Personal communication in Sledge (1977).

METHODOLOGY

The Data

The data used in this investigation are from a project entitled: "Regional Study of Higher Education in Agriculture and Home Economics in the South." This endeavor is part of a larger study, "Defining and Achieving Life Goals: A Process of Human Resource Development" (Project S-114), which is supported by USDA - SEA/CR.

The "Regional Study of Higher Education in Agriculture and Home Economics in the South" collected data from a sample of students enrolled in colleges of agriculture and home economics in both "1862" and "1890" land-grant universities in the following states: Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, and Virginia. Also included were Texas Tech University and Tuskegee Institute for their prominent roles in agriculture (see Table 1). Data collected from students majoring in home economics are not used in the present analysis.

A 15 percent random sample stratified by school was selected in the "1862" institutions and Texas Tech. However, because of the smaller size of "1890" institutions and the Tuskegee Institute, all of their students enrolled in agriculture were included. The data were collected during the spring of 1977 via mail questionnaire. The total agricultural student population was 24,385, resulting in a sample size of 4,924. The final return yielded information on 3,417 "ag" students. However, for purposes of this investigation only those persons classified as undergraduate "ag" majors who identified their race as either black or white are included. Thus 3,075 students are used in this investigation, 93.8% of them are white and 6.2% black. (For a detailed discussion of the sampling procedures, see Howell and Parent, 1979).

Treatment of Missing Values and Sample Weighting

Although missing responses can be handled by several different methods (see Hertel, 1976, Babbie, 1973; Lansing and Morgan, 1971.), we assigned race-sex subgroup means for each variable. Note, however, that the regression anlysis utilizes pairwise deletion procedures.

A stratified random sample by school can, in many cases, have advantages over a simple random sample (see Lazarwitz, 1968; Kish, 1965; Cochran, 1963). Stratification is usually used to enhance the representativeness of a sample. Since this sample is stratified by school, gains in precision will be greatest for those variables most closely related to

between-school difference. Because of differential sampling rates between 1862 and 1890 institutions and because of differential response rates across all strata (schools), to construct a representative "ag" sample for the region as a whole, a weighting procedure is used. The weighting procedure (See Table 1) was designed to "expand" and "contract" individual stratum, while retaining the original size. (For sampling details, see Howell and Parent, 1979).

Operationalization of the Variables

A student's place of residence is measured by the size of the community he (she) reported living in most of his (her) life. The responses are coded into rural farm, rural nonfarm (town or village under 10,000 in population or open country nonfarm), and urban. The residential preference of a student after college, as well as the size of the respondent's father's and mother's childhood place of residence, utilize the same response categories employed for the student's place of residence.

The formal agricultural educational experience of a respondent is measured by whether or not he (she) took one or more agriculture courses in high school. A student's educational aspiration is a measure of the amount of formal education a student would obtain if he (she) were completely free to choose. The educational expectation of the respondent measures the actual amount of formal education expected.

A student's major field of study is a traditional - nontraditional dichotomy of the first response to the question eliciting the respondent's major or area of concentration. The answers were coded into the traditional-nontraditional major dichotomy based upon the breakdown presented in Table 2. (For details on how the dichotomy was developed, see Parent, 1979 and Kellogg and Knapp, 1966).

Work experience measures whether or not a student has engaged in agriculturally related work either at home or for pay elsewhere. Occupational aspiration is the job a student would enter if he (she) were completely free from constraints. Occupational expectation is the occupation a student actually expects to engage in most of his (her) life. Both aspirations and expectations are coded into an agriculture - nonagriculture occupation dichotomy. (See Parent, 1979:22-23 for details).

FINDINGS

A brief description of the respondents in the sample shows that about 57% of the 3,075 students are from urban areas, indicating that urbanities comprise a majority

of the students in southern colleges of agriculture. A closer look at the rural students reveals that 47.1% of them come from farms and the other 52.9% from rural nonfarm areas.

Males, who make up about seventy-five percent of the agriculture student body, are about evenly divided with respect to rural or urban residential backgrounds. Of the rural males, about half are from farms and the remainder from open country or small town residences.

Women comprise 27.0% of the agriculture school sample; this is consistent with the 28.0% figure obtained by Thompson (1976). The rural-urban composition of the females is extremely interesting. About 71% of the women are from urban areas with only 29% coming from rural residences; of the latter, approximately 40% are from farms.

Table 3 compares the childhood residences of parents with the current hometown residences of students which, in most cases, is also their parents' current residence. The results, as expected, indicate that since their childhood a majority of the parents (both fathers and mothers) have moved to more urban areas while those reared in urban areas have tended to remain there.

Education: Experiences, Aspirations, Expectations and Area of Study

Table 4, comparing rural and urban agriculture students by whether or not they took any agriculture courses in high school, indicates that a majority (54.3%) of the students from farms took at least one agriculture course in high school. This figure drops to about 36% for those living in rural nonfarm areas and to around 10% for urbanites. As expected from the status attainment literature (e.g. see Middleton and Grigg, 1959; Elder, 1963; Sewell, 1964; Burchinal, 1966; Hassinger, 1978; and especiallly Boyd and Pettigrew, 1977), educational aspirations and expectations of the respondents are linked to their current place of residence. The results in Tables 5 and 6 indicate that agriculture students from urban areas both aspire to and expect more education than those from rural areas. Rural farm youth have the lowest educational aspirations and expectations.

Table 8 shows that type of major selected by agriculture students. Sixty two percent of the students are in traditional fields of study (see Table 8) while the other 38% are enrolled in areas not traditionally offered in colleges of agriculture. As can be seen from the results in Table 8, over 80% of the students who live on farms are majoring in

traditional areas. This figure drops to 63% for rural nonfarm residents and to about 54% for urban students.

Work Experience and Occupational Aspirations and Expectations

A surprisingly large percentage (78%) of students have had some agricultural work experience. This figure ranges from a low of 66.2% for urban students to almost 100% of the rural farm youth. The occupational aspiration and expectation results, see in Tables 9 and 10, are virtually identical; that is, farm youth are more likely to aspire and expect agriculture occupations than either rural nonfarm or urban students. Although urban students had the smallest percentage aspiring and expecting to enter agriculture occupations, these figures still exceed 77%.

Residential Desires After College

Although as a group, southern agriculture students are about equally split in their residential aspirations, these preferences vary by residential background. (see Table 11). That is, students from farms show a preference to eventually live on a farm; those from rural nonfarm areas to remain in such areas and those living in cities to settle in urban areas. This is consistent with the finding of Fuguitt and Zuiches (1975:499) that ". . . current residence has an important effect in that people who live in an area are more likely to prefer it than people who do not. . ." It appears that this relationship is strongest for those agriculture students residing on farms.

SUMMARY AND DISCUSSION

Summary

In sum, we found that a majority (57%) of the students enrolled colleges of agriculture in the South are from urban areas. For males this figures reduces to about 50%, however, it increases to 71% for women. As expected, experience with agriculture courses in high school was greatest for farm reared youth and lowest for those residing in urban areas. The educational aspirations and expectations varied as expected (e.g., Middleton and Grigg, 1959; Elder 1963; Sewell, 1964; Burchinal, 1966; Hassinger, 1978; Boyd and Pettigrew, 1977), that is, the more rural a student's residence the greater the chances that he (she) will have lower educational aspirations and expectations. Although a majority of the students (irrespective of place of residence) are enrolled in traditional agricultural majors; those residing on farms are most likely to select such an area of study while those from urban areas are the least

likely candidates.

The fact that 78% of the urban students enrolled in colleges of agriculture have had some agricultural work experience was somewhat of a surprise. The trend between place of residence and work experience in agriculture is as expected, the more rural the place of residence the larger the percentage of students who have had agricultural jobs. This trend also holds for the occupational aspirations and expectations when these are dichotomized into agriculture and nonagriculture. Although for the total sample residential aspirations were about equally split, our results by current place of residence are as expected (Fuguitt and Zuiches, 1975). That is, like other people agricultural students show a preference for living in an area similar to the one in which they currently reside.

Discussion

Findings on students' "choice of majors," indicate that urban students are more likely than their rural counterparts, particularly those from farms, to choose nontraditional majors in agriculture. Focusing on nontraditional majors our findings show that urbanites comprise at least 60% of the students enrolled in these five majors. Therefore, it can be concluded that although these nontraditional fields of study are not the sole reason urban students choose agriculture in college, they do play an important role. Although nontraditional majors can be considered a "drawing card" for city-dwellers, urban students are not totally avoiding traditional majors. Consequently, instructors of traditional fields of study must continue to be prepared for students without a rural background. In conclusion, the continued expansion and "liberalization" of "ag" school curricula appears valid; however, this should not be done at the expense of traditional majors.

In order to determine which variable or set of variables best explain a student's choice of a traditional or non-traditional major,[3] we did a regression analysis using type of major as our dependent variable and the rest of the variables in this paper as predictors.[4] The results indicate an

[3]It should be noted that for the regression analysis the original answer categories were used for all of the residential variables. As a result these answers have a six rather than a three point rural to urban continuum.

R^2 of about 13% most of which (about 12%) is due to three variables, namely, whether or not the student had some agricultural work experience, educational expectations, and whether or not the student had taken an agriculture course(s) in high school. Thus those students with agricultural work experience, "low" (no graduate work) educational expectations and one (or more) high school agricultural course are the ones most likely to enter traditional majors.

A majority of both rural and urban students aspire and expect agricultural occupations after the completion of their schooling. However, while it is true that the agricultural aspirations and expectations are higher among rural students, particularly rural-farm students, these differences are not great. Unfortunately, the type of work actually obtained after a student graduates is not available in our data set. It should also be noted that the term "agricultural occupation" as used here does not refer only to farming. Since approximately 30% of the labor force is employed in agriculture, colleges of agriculture will continue to have an influence on the American economy. Because urbanites are playing an ever larger part in colleges of agriculture, their occupational choices have an important affect on the agricultural sector of the economy. If the majority of the urban "aggies" leave agriculture after graduation, the influence of colleges of agriculture on the agricultural sector could be deflated. Even though urban students in agriculture are more likely than their rural counterparts to desire and expect nonagricultural employment, a majority desire and expect to obtain agricultural occupations.

In conclusion, the substantial growth of colleges of agriculture in recent years emphasizes the important role they will continue to play in higher education. The large number of students within these schools will certainly have an influence on our perception of agriculture. The image of farming and agriculture as a whole will continue to change as more and more college educated city-dwellers enter these occupations.

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[4]Although we are aware of more appropriate statistical methods for fitting models under binary conditions of the dependent variable (e.g., logit, probit, weighted and iteractively reweighted least squares, etc.), in order to remain with the usual interpretation of the "probability" of entering either a traditional or a nontraditional major we used OLS estimates. We did not do a weighted least squares solution since our mean responses ranged between .2 and .8 (Neter and Wasserman, 1974:328). The usual bias for such OLS estimates is an overestimated set of standard errors for model coefficients (Hanushek and Jackson, 1977:180-182).

Table 1. Colleges of Agriculture in the South and Weighted Distribution

School	Weighted Sample Size	School	Weighted Sample Size
Alabama A&M	16	Mississippi State	160
Alcorn	27	North Carolina A&T	16
U. Arkansas Pine Bluff	11	North Carolina State	305
U. Arkansas Fayetteville	93	Oklahoma State	236
Auburn	184	Prairie View State	10
Clemson	111	Southern	17
U. Florida	113	U. Tennessee	174
Florida A&M	13	Tennessee State	20
Fort Valley State	8	Texas A&M	516
U. Georgia	181	Texas Tech	182
U. Kentucky	168	Tuskegee Institute	36
Langston	1	Virginia Polytechnic	332
Louisiana State	132	Virginia State	11
		Total	3073*

* When table totals deviate from 3075 it is due to rounding error caused by weighting.

Table 2. Majors in Colleges of Agriculture Grouped into Sixteen Categories

1. General Agriculture

   General Agriculture

2. Agricultural Economics

   Agricultural economics
   Ag. and farm management
   Environmental and resource economics
   Community and rural development
   Rural Sociology
   Agribusiness

3. Agronomy

   Agronomy (soil and plant science)
   Crop production and soil management
   Crop Science (or plant science)
   Soil Science
   Agronomy (other)

4. Animal Science

   Animal science (animal nutrition)
   Animal science (science)
   Animal science (production)

Table 2. (Continued)

5. Dairy Science

Dairy science
Dairy manufacturing
Dairy production (science)
Dairy production (management)
Dairy manufacturing
Dairy manufacturing (science)
Environmental health

6. Entomology

Entomology (science)
Pest management
Plant and animal protection
Animal protection
Plant protection
Entomology

*7. Forestry and Wildlife

Forestry
Forestry (science)
Forestry (management)
Wildlife and fisheries science
Wildlife (science management)
Fisheries (science management)
Forestry and wildlife management
Natural resources

8. Horticulture

Horticulture
Horticulture (science)
Horticulture (production)
Ornamental horticulture
Retail forestry

*9. Preveterinary Medicine

Veterinary science (preveterinary)
Animal science (preveterinary)

*10. Landscape Architecture

Park and recreation administration
Landscape contracting
Landscape architecture/design
Turfgrass management

*11. Biological Science

Biology
Botany
Zoology
Biochemistry
Plant pathology
Applied ecology (Bio-environmental science)

12. Agricultural Education

Agricultural education
Agricultural and extension education
Agricultural journalism

13. Agricultural Engineering

Agricultural mechanization
Agricultural engineering
Agricultural mechanization and business

*14. Food Science

Food science

15. Poultry Science

Poultry science

16. Range Science

Range science

*Indicates "nontraditional" agriculture major.

TABLE 3. STUDENT'S PLACE OF RESIDENCE BY PARENTS' CHILDHOOD RESIDENCE

Student's Residence	Parents' Childhood Residence											
	Father						Mother					
	Rural Farm		Rural Nonfarm		Urban		Rural Farm		Rural Nonfarm		Urban	
	N	%	N	%	N	%	N	%	N	%	N	%
Rural Farm	495	46.0	96	10.5	40	30.7	366	42.4	159	15.3	105	9.0
Rural Nonfarm	257	23.9	317	34.6	137	12.6	210	24.3	345	33.2	155	13.1
Urban	325	30.1	503	54.9	906	83.7	288	33.3	535	51.5	910	77.9
Total	1077	100.0	916	100.0	1083	100.0	864	100.0	1039	100.0	1168	100.0

TABLE 4. STUDENT'S AGRICULTURAL EDUCATION EXPERIENCE BY PLACE OF RESIDENCE

Took Agricultural Course(s) in High School	Place of Residence					
	Rural Farm		Rural nonfarm		Urban	
	N	%	N	%	N	%
Yes	342	54.3	257	36.4	171	9.8
No	288	45.7	450	63.6	1567	90.2
Total	630	100.0	707	100.0	1738	100.0

TABLE 5. STUDENT'S LEVELS OF EDUCATIONAL ASPIRATIONS BY PLACE OF RESIDENCE

Educational Aspiration	Place of Residence					
	Rural farm		Rural nonfarm		Urban	
	N	%	N	%	N	%
Quit before Bachelor's Degree	28	4.5	16	2.2	28	1.6
Bachelor's Degree	273	43.3	245	34.5	480	27.7
Master's Degree	143	22.7	183	25.7	526	30.4
Professional or Ph.D. Degree	186	29.5	267	37.6	699	40.3
Total	630	100.0	711	100.00	1733	100.0

TABLE 6. STUDENT'S LEVEL OF EDUCATIONAL EXPECTATION BY PLACE OF RESIDENCE

Educational Expectation	Place of Residence					
	Rural farm		Rural nonfarm		Urban	
	N	%	N	%	N	%
Quit before Bachelor's Degree	25	4.0	27	3.8	31	1.8
Bachelor's Degree	408	64.7	399	56.2	967	55.8
Master's Degree	107	17.0	160	22.5	400	23.1
Professional or Ph.D. Degree	90	14.3	124	17.5	335	19.3
Total	630	100.0	710	100.0	1733	100.0

TABLE 7. STUDENT'S AGRICULTURE WORK EXPERIENCE BY PLACE OF RESIDENCE

Agriculture work experience?	Place of Residence: Rural farm N	Rural farm %	Rural nonfarm N	Rural nonfarm %	Urban N	Urban %
Yes	627	99.4	623	87.8	1148	66.2
No	4	0.6	87	12.2	586	33.8
Total	631	100.0	710	100.0	1734	100.00

TABLE 8. STUDENT'S MAJOR FIELD OF STUDY BY RESIDENCE

Type of Major	Place of Residence: Rural farm N	Rural farm %	Rural nonfarm N	Rural nonfarm %	Urban N	Urban %
Traditional	514	81.5	448	63.1	944	54.4
Nontraditional	117	18.5	262	36.9	790	45.6
Total	630	100.0	710	100.0	1734	100.0

TABLE 9. OCCUPATIONAL ASPIRATIONS OF AGRICULTURE STUDENTS BY RESIDENCE

Occupational Aspiration	Place of Residence: Rural farm N	Rural farm %	Rural nonfarm N	Rural nonfarm %	Urban N	Urban %
Agriculture Occupation	552	87.7	570	80.7	1340	77.1
Nonagriculture Occupation	78	12.3	137	19.3	398	22.9
Total	630	100.0	707	100.0	1738	100.0

TABLE 10. OCCUPATIONAL EXPECTATIONS OF AGRICULTURE STUDENTS BY RESIDENCE

Occupational Expectations	Place of Residence: Rural farm N	Rural farm %	Rural nonfarm N	Rural nonfarm %	Urban N	Urban %
Agriculture Occupation	552	87.5	585	82.9	1367	78.6
Nonagriculture Occupation	79	12.5	121	17.1	371	21.4
Total	631	100.0	707	100.0	1738	100.0

TABLE 11. STUDENTS' RESIDENTIAL ASPIRATIONS BY PLACE OF RESIDENCE

Residential Aspiration	Place of Residence: Rural farm N	Rural farm %	Rural nonfarm N	Rural nonfarm %	Urban N	Urban %
Rural farm	453	71.8	251	35.4	498	28.7
Rural nonfarm	117	18.5	299	42.1	490	28.2
Urban	61	9.7	160	22.5	747	40.1
Total	631	100.0	710	100.0	1735	100.0

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